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ACM HONORS FOUR INDIVIDUALS FOR OUTSTANDING SERVICE TO THE COMPUTING COMMUNITY

Honorees Authored Influential Textbooks, Advanced Professional Organizations, Made the World Wide Web Accessible to Millions, and expanded ACM's Global Reach

New York, NY, May 4th, 2022 – ACM, the Association for Computing Machinery, today recognized four individuals with awards for their exemplary service to the computing field. Working in diverse areas, the 2021 award recipients were selected by their peers for longstanding efforts that have strengthened the community. This year's ACM award recipients made important contributions such as authoring computing textbooks and curriculum; increasing diversity in computing; advancing professional organizations; making the web accessible to millions of people and expanding ACM's global presence.

Mark Allen Weiss, a Professor at Florida International University, receives the **Karl V. Karlstrom Outstanding Educator Award** for advancing the art and science of computer science (CS) education through his textbooks, research, and curriculum design, which have affected thousands of instructors and students worldwide.

Weiss's most significant contributions to the evolution of the data structures and programming curriculum have been through his textbooks, which have been used in numerous countries and published in multiple editions over three decades (from the 1990s to the 2010s). He was one of the first authors to include advanced topics such as splay trees and amortized analysis with detailed implementations that matched the theoretical results outlined in the programming textbooks. His books were also groundbreaking in that they included in-depth presentations of C++ features and syntax, predating the Standard Template Library (STL) with vector and string classes.

Weiss has also led and contributed to important education projects. Beginning in the late 1990s, he was part of the Advanced Placement (AP) CS Development Committee that designed the AP curriculum and wrote the AP exams taken by US high school students. He chaired the committee for four years during the early 2000s, when the exam design was changing from C++ to Java, and the underlying curriculum was putting greater emphasis on object-oriented design and abstraction principles. He is also co-leading a project to help the US National Science Foundation set priorities for CS education research.

Notably, he has also been a champion for increasing diversity in the computing field, especially through partnership programs with other universities in the state of Florida. These programs include pooling courses to improve access to relevant subject matter, providing support for especially challenging courses early in the computing curriculum, and increasing financial support for high-ability students with economic needs. As Associate Dean of Undergraduate Education at Florida International University, Weiss's leadership in these programs has significantly increased the four and six-year graduation rates at his institution.

Among his many honors, Weiss has received the ACM SIGCSE Award for Outstanding Contributions to Computer Science Education, the IEEE-CS Taylor Booth Education Award, and the IEEE Sayle Education Achievement Award.

[The Karl V. Karlstrom Outstanding Educator Award](#) is presented annually to an outstanding educator who is appointed to a recognized educational baccalaureate institution. The recipient is recognized for advancing new teaching methodologies; effecting new curriculum development or expansion in Computer Science and Engineering; or making a significant contribution to the educational mission of ACM. Those with 10 years or less teaching experience are given special consideration. A prize of \$10,000 is supplied by Pearson Education.

Erik Altman, Research Scientist at IBM Research, receives the **ACM Distinguished Service Award** for leadership in the computer architecture communities, and for contributions to ACM organizational development.

Erik Altman has demonstrated excellence, both as a computer architecture research scientist at IBM and as a driver of positive change within the Association for Computing Machinery and the IEEE Computer Society. For example, as chair of the ACM Special Interest Group on Microarchitecture (SIGMICRO), Altman drove the recognition of important contributions by co-founding and chairing the Micro Hall of Fame award. He also helped establish a successful oral history project and worked to improve computer architecture conferences.

As chair of ACM's Special Interest Group (SIG) Governing Board, he worked to better coordinate the activities of the more than three dozen SIGs. He tested ways to engage and educate the larger ACM community with daily news feeds, paving the way for ACM's successful *TechNews*. He contributed to ACM's financial well-being by serving on the Executive Committee as Secretary-Treasurer for two years. He has also been a long-term member of the ACM Investment Committee, which oversees a \$100M+ fund.

As editor-in-chief of IEEE Computer Society's *Micro* journal for four years, Altman drove the creation of important special themed issues. He helped establish the IEEE Rau Award for substantial contributions to microarchitectures. As a member of the IEEE Computer Society's Magazine Operations Committee, he has worked to improve the financial health of several IEEE magazines.

He has also served as program chair, vice-chair, or general chair of many conferences for topics in computer architecture, machine learning, and logic.

In parallel with his volunteer work, Altman has had a prolific industrial research career spanning computer architecture, compilers, and parallel computing. He worked on IBM Research's Dynamically Architected Instruction Set from Yorktown (DAISY) project, which solved many difficult problems in dynamic binary instruction translation and had significant research impact and influence. He has twice received an IBM Outstanding Innovation Achievement Award. Altman has more recently led efforts to do early detection of cyber-attacks using continuous learning in multiple dimensions and has explored the generation of synthetic financial and medical training data for use in machine learning models.

[The ACM Distinguished Service Award](#) is presented on the basis of value and degree of services to the computing community. The contribution should not be limited to service to the Association but should include activities in other computer organizations and should emphasize contributions to the computing community at large.

Judy Brewer, Director of the Web Accessibility Initiative (WAI) of the World Wide Web Consortium, receives the **ACM Policy Award** for her leadership of the Web Accessibility Initiative and development of multiple web accessibility standards, which have been adopted globally and improved accessibility for millions worldwide.

Brewer leads the development of standards and strategies for inclusive web design, providing web developers with tools necessary to bring the power and the promise of the World Wide Web to millions of people who otherwise might have been excluded from this vital component of modern life. She is based at the Massachusetts Institute of Technology, where she is a Principal Research Scientist in the Computer Science and Artificial Intelligence Laboratory.

In the late 1990s, although web design was flourishing, accessibility was not. Millions of new users uploaded image maps, frames, and other features that proved problematic at best and prohibitive at worst for users with auditory, cognitive, motor, neurological, physical, speech and visual disabilities. Under Brewer's direction, WAI develops the Web Content Accessibility Guidelines (WCAG), which provide developers with a set of criteria to judge the accessibility of the sites they are building. WCAG also inspired the development of numerous evaluation tools capable of reviewing web pages to identify potential barriers such as non-navigable menu structures and images without alternative textual descriptions. The WCAG specifications and these tools provide a baseline for accessible web design, and for accessibility of web-based technologies such as real-time communications and virtual reality.

Under Brewer's leadership, WAI has also worked extensively with government agencies, industry, and disability organizations, leading to the adoption of WCAG as an international standard (ISO/IEC 40500:2012), and the alignment of WCAG with Section 508 of the Rehabilitation Act in the US and European Mandate 376 requiring accessible technology procurement and development in all EU countries. The WCAG standards have been translated into twenty-three languages and have been

adopted by dozens of countries. Nearly every government around the world that has requirements for digital accessibility cites WCAG. WAI has led the evolution of the web from its early days of featuring expensive and unscalable alternative text-only designs to a modern reality of highly accessible layouts designed to seamlessly work on both desktops and smartphones.

Brewer has led these efforts for more than 20 years, participating on numerous committees of the US Access Board, the US National Council on Disability, the US Federal Communications Commission (FCC), the International Organization for Standardization (ISO)/International Electrotechnical Commission (IEC) standards bodies, industry groups, and many others. She has published widely on accessibility; testified before US Congress and government organizations in Korea, Denmark, China, and other countries; given numerous international keynote presentations; and has been honored by numerous groups concerned with accessibility.

The ACM Policy Award was established in 2014 to recognize an individual or small group that had a significant positive impact on the formation or execution of public policy affecting computing or the computing community. This can be for education, service, or leadership in a technology position; for establishing an innovative program in policy education or advice; for building the community or community resources in technology policy; or other notable policy activity. The award is accompanied by a \$10,000 prize.

Dame Wendy Hall, Regius Professor of Computer Science at the University of Southampton, receives the **ACM Presidential Award**. Hall is recognized for her technical contributions that have significantly influenced the development of the Semantic Web and the field of Web Science; her leadership and impact in shaping the science and engineering policy agenda internationally; her advocacy and leadership in promoting informatics education throughout Europe through the Informatics for All coalition and other international groups; and her committed and inspired work to strengthen ACM's geographically diverse footprint and establishing and fostering regional councils to promote ACM activities in China, India, and Europe.

Hall is one of the first computer scientists to undertake serious research in multimedia and hypermedia. The influence of her work has been significant in many areas including digital libraries, the development of the Semantic Web, and the emerging research discipline of Web Science. With Sir Tim Berners-Lee, Sir Nigel Shadbolt, and Daniel J Weitzner, she co-founded the Web Science Research Initiative and is the Managing Director of the Web Science Trust, which has a global mission to support the development of research, education and thought leadership in Web Science. Since 2014, she has served as a Commissioner for the Global Commission on Internet Governance.

Hall has also helped shape science and engineering policy and education. In 2018, she helped found the Informatics for All coalition, and serves as the chair of its steering committee. Informatics for All aims to establish informatics as a fundamental and independent subject in school for students at all levels throughout Europe.

As the first ACM President from outside North America, Hall initiated the establishment of ACM Councils in Europe, India and China, extending the organization's scope to a borderless audience. She also focused on the education of upcoming computer science generations, promoting gender diversity and nurturing talent in computing from all corners of the world.

[The ACM Presidential Award](#) is given at the discretion of the ACM President, to individuals whose contributions in computing fall within the goals of the ACM.

About ACM

[ACM, the Association for Computing Machinery](#), is the world's largest educational and scientific computing society, uniting computing educators, researchers, and professionals to inspire dialogue, share resources and address the field's challenges. ACM strengthens the computing profession's collective voice through strong leadership, promotion of the highest standards, and recognition of technical excellence. ACM supports the professional growth of its members by providing opportunities for life-long learning, career development, and professional networking.

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